Title: The Impact of Pig Health on Public Health: Quantitative Data for Risk Assessments - NPB #12-092

Investigator: Alejandro Ramirez for the late Scott Hurd

Institution: Iowa State University

Date submitted: May 1, 2014

Scientific Abstract:

The objectives of this study were three-fold: (i) develop a national estimate for peelout prevalence in swine carcasses, (ii) determine if common respiratory pig pathogens are associated with peelouts (specifically Streptococcus suis, Pasteurella multocida, Bordetella bronchiseptica, Actinobacillus suis, Actinobacillus pleuropneumoniae, and Haemophilus parasuis) and (iii) determine if peelouts are associated with Salmonella contamination. Six abattoirs were selected from different geographical areas of the United States, and samples were evaluated at two time periods. At each abattoir visit, 50 lesioned (peel-out present) and 50 non-lesioned (peel-out absent) carcasses were sampled. Lung samples and pleural swabs were taken from each carcass. A standard bacteriological identification and culture was performed. A national prevalence estimate was obtained. Association between Salmonella contamination and peelouts and respiratory pathogens and peelouts was analyzed using logistic regression, 1,228 carcasses were analyzed: 623 lesioned carcasses and 605 non-lesioned carcasses. Peelout prevalence ranged from 2.64% to 28.39%, with an average of 9.78% (95% CI 5.33% to 14.23%). Contamination rates for respiratory pathogens varied greatly, and there was no consistent pattern among lesioned/non-lesioned carcasses. The prevalence of respiratory contamination for lesioned and non-lesioned carcasses was as follows: Streptococcus suis, 5.45% to 50%, 2.04% to 56.76%, Pasteurella multocida, 0% to 33.33%, 0% to 42%, and Bordetella bronchiseptica 0% to 6.12%, 0% to 2.22%. Salmonella prevalence ranged from 0% to 23.53% in lesioned carcasses, and 0% to 16% in non-lesioned carcasses. The association between Salmonella contamination and peelouts was not statistically significant, except in abattoirs with a higher prevalence of Salmonella contamination.